


AVIATION WEEK

A MCGRAW-HILL PUBLICATION

FEB. 12, 1951

\$6.00
A YEAR



The tail-less plane has a tail!

That is, it has all of a tail's good dynamic qualities, without as much "drag" as is inherent in an actual tail.

In the Northrop Flying Wing, these qualities are provided *electronically*—by a system that makes the wingtip rudders perform directional and stabilizing functions.

It's all a question of *automatic control*. So Northrop chose a Honeywell Autopilot with the Honeywell rate gyro as the sensing part of the system; had us adapt them to the Flying Wing.

We do many special jobs like this. We'll be doing them for many years to come—because *automatic control* is such an all-important part of aviation progress. And *automatic control* is Honeywell's business.

Minneapolis-Honeywell, Minneapolis 8, Minn.

MINNEAPOLIS
Honeywell

Aeronautical Controls

B.F. Goodrich



JOY AXIVANE AIRCRAFT FANS ELIMINATE DANGEROUS FUMES

The Douglas C-124 Globemaster II, designed and manufactured by the Douglas Aircraft Company, Inc., Long Beach, California, is designed to permit trucks to be driven directly into the cargo department for loading or unloading. Exhaust gases from gasoline or Diesel-driven trucks would present a hazard to the loading crew. Two Joy AXIVANE Aircraft Fans are therefore installed in the forward cargo-compartment bulkhead. These introduce a large volume of outside air into the cabin, during loading operations, to prevent the accumulation of explosive or toxic vapors. When the plane is transporting troops, these fans provide ventilating air prior to take-off.

Each of these highly efficient 6 H.P. blowers produces 1250 C.F.M. at 2.0" static pressure, yet weighs only 15.5 pounds and is only 9" in diameter. Design and advantages found in all Joy Aircraft Fans are compact design, shock-resistant construction, automatic opening coils, and the most favorable air velocity-weight and electric-to-air power ratios.

• Joy designs and builds such fans to the exact requirements for which it is installed. Each fan, therefore, is custom engineered for highest efficiency. For many purposes such fans can be supplied from the extensive fan already designed. Each model and size range from models. Optional features include carrying or fixed units, bonded or flanged construction, rubber motor flters, automatic, and control motors where required.

Here are some of the many uses for Joy AXIVANE Aircraft Fans: Windshield de-icing, windshield or wing de-icing, cabin heating, cabin ventilating, cockpit heating, seating radio and electronic equipment, seating voltage regulators, oil cooling, gear-box cooling, instrument cooling, air recirculation, and high-altitude pressurizer heating.

Write for Bulletin, or
Consult a Joy Engineer
100 Years of Engineering Leadership

JOY MANUFACTURING COMPANY

GENERAL OFFICES: NEMIT W. OLIVER BUILDING - PITTSBURGH 23, PA.
IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GAITHERSBURG, ONTARIO



60-inch bag holds 12-man boat, unzips itself in seconds

THEY COULDN'T GUARD the B.F. Goodrich. These solved a difficult rubber raft problem. An inflatable boat that carries 25 men—12 in the bow, 15 elsewhere—can be rolled into a compact bundle, only 60 inches long.

Trouble was that the boats were being splashed with sea water and oil, and a storage case that could be opened instantly in an emergency wouldn't suit our clients. The builders of the case had heard of the B.F. Goodrich pressure sealing zipper, thought it might

be the answer. It was, so far as sealing the case was concerned.

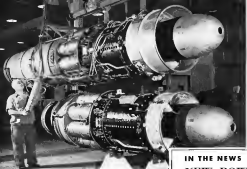
In addition, B.F. Goodrich engineers have developed a seal for the end of the zipper and a lock that can be opened instantly. A ball turn and a yoke, not one only does the zipper unlock, but a cushion inside inside the case is released, providing the pressure that rips open the case.

The storage case problem has been solved with a seal that assures dependability after long storage. Provides a

water-tight seal, is the answer and. And speeds up the launching and inflating job. In fact, the whole launching operation can be handled by one man.

If you have a problem that rubber or fabric materials might solve, B.F. Goodrich engineers may already have the answer. Check with The B.F. Goodrich Company, Akron, Ohio.

B.F. Goodrich
FIRST IN RUBBER



F404 turbofan engine (upper), one of new engines now in production at GE's Lynn, Mass. plant, features integrated electrical fuel and jet nozzle systems for completely automatic control of engine and afterburner. New fuel system is designed for operation at 50,000 feet, opposite polarity ignition allows starts at that altitude.

IN THE NEWS NEW POWER NEW RESEARCH NEW RECORD

Designed to suit your specific needs, turboprop, turboprop and turboshaft engines are available at General Electric. This complete line of aircraft gas turbines is backed by forty-five years of experience. Specialists in every phase of aircraft gas turbine work assure you

of quality and dependability. For aircraft powerplants that are constantly being improved, call your General Electric aviation specialist or write: Apparatus Department, General Electric Company, Schenectady 5, New York.



Water-cooled periscope lets G-E engineers look directly into hot exhaust gases in jet test rig. Study of these burning gases is invaluable in the improvement of aircraft gas turbines. Research looks such as this are constantly being developed at GE to give you better power.



World endurance record was set at Selfridge AFB by this North American F-56, powered by G-E J47. Plane landed every two hours for refueling but was operated continuously for 33 1/2 hours. Overdue on war is representative from widespread G-E turbine expansion.

AIRCRAFT GAS TURBINES

GENERAL  ELECTRIC

WHO'S WHERE

In the Front Office

G. A. Baker, Jr., vice president-in-charge at Lockheed Aircraft, has assumed additional duties as president of Acquisition and Aerial, as well as chairman of the board of the subsidiary. Dr. J. H. Hughes, former president, has become assistant general manager at Lockheed's recently acquired Monaca, Ca., installation. He was awarded several contracts of Acquisition and Aerial at Ralph O'Brien, formerly vice president and advertising manager.

R. B. Newell, general manager of the Allison Division, General Motors, has taken on personal responsibility for the Allison engine operations of the division, a move in line with defense production expansion. New machine responsibilities have been given, subject to Newell's final approval, to most of general manager Robert M. Caldwell. W. G. Garlow, director of general sales engineering, and Robert Fleming, public affairs director, have become part of a general staff serving all activities in the general manager and his assistant. For aircraft engine personnel such as E. M. Howe, director of engineering, R. G. Galt, sales and contract manager, and J. C. Cunningham, sales manager, continue in their posts.

What They're Doing

Bernie E. Fagley, public relations officer of the Aircraft Industries Group, has left his position to go on working up a new strategy system for the F-16. Air Force officials are concerned with the program over a year ago to shed all primary aircraft.

C. L. Chiswick, former vice president of the Aircraft Industries Group, has been named as AGO's national security liaison committee for the jet test, now assigned to Denver's director of aviation to give full attention to his jet test aviation activities.

Changes

E. M. Larkin has been named assistant general manager at Fairchild F-16, division and Alfred T. George has become head of the engineering division. Philip P. Miller, formerly assistant to John, has been named as G-E's new vice president manager of sales activities in the public aviation area.

Dick T. Galt has been named as general manager at Lockheed's Monaca, Ca., plant and Robert W. McMillan, chief engineer, Ronald Korman has been named as chief engineer and S. H. Noller as the works manager. Other appointments are: Morris Chene, engineering agent; A. A. Merrill, industrial relations manager; Ben Harwood, personnel plan manager; John H. H. Brown, and accounting; G. P. Thom, senior engineer and division manager; and F. A. Wheeler, chief manufacturing engineer.

Nancy G. Tetter has been named general manager of Boeing-Pittsburgh's production division, with M. A. Galt, chief, according to an assistant manager of the first day working at the South Bend plant.

INDUSTRY OBSERVER

Both the North American F-51A, production fighter prototype now being turned over by the USAF to the NACA Flight Test Laboratory at Edwards AFB, Miss., Calif., its high-speed flight research, indicating that this model, despite its excellent performance, is not going into production. The F-55, a scaled-up version of the North American F-50, is powered with a Pratt and Whitney J-48 engine, rated at 6250 lb. thrust dry and close to 9000 lb. with afterburner. The transfer will give NACA a chance to get some further flight data on some of its late ideas about built-in airframe, which are incorporated in the F-51 design.

New USAF air-to-air combat transport container is being developed by Stanley Aerospace Corp., Fallsburg, with first experimental model expected to be in use by the AFMTC in the near future. Containers are powered by two 140-hp diesel engines. It will carry 12 fully equipped ground troops or 6000 lb. of cargo. Four air bags under the floor can inflated when container is released from plane, and cushion the landing shock. Container is designed for use with Fairchild C-119 combat transport. Dimensions are 6 by 8 by 5-8-10 ft.

Regardless of whether Fairchild or Kerm-Fischer makes the C-119C, Packets, they will all be called Fairchild Packets, the USAF has advised both companies.

The Fairchild C-119C Packets on order for the Marines will probably be powered by Wright R-3500 compound engines built under license by Allison Motor Car Co. under Navy sponsorship.

Donnan Helicopters has launched the CW-40 rescue helicopter, built by Donnan for the USAF helicopter rescue competition, to the Curtiss-Wright competition following the completion of flight tests conducted last. New Donnan is back on its own independent project of developing a new version of the Bell helicopter of different design. The rescue competition was won by the Fairchild H-21.

Jet engine trouble at the Allison Turboprop on its first test lay at San Diego was traced to a relatively minor misalignment of the engine. The engine trouble was traced to a relatively minor misalignment of the engine. The engine trouble was traced to a relatively minor misalignment of the engine.

A group of 10 Fairchild technology and production experts headed by Fairchild Vice President Paul J. Vissell has paid its first visit to Kerm-Fischer's Wilcox, Ariz. plant, starting to put into operation the assistance agreement between the two companies for building the C-119C Packets. Personnel present said that the meeting was cordial by amiability and indicated that both companies were ready to "bury the hatchet and get the job done." First Wilcox-Rosebud Packets, assembled from parts supplied by Fairchild as part of the production training program, is expected to be the first.

Scandinavian Airlines System has put its first jet-built built-in engine Swedish airlines into service on the Oslo-Göteborg Copenhagen run, and has taken delivery on two more Swedish. Delivery of their more Scandinavian to SAS this spring will complete the schedule of six planes ordered.

Gravel winds are now being produced and tested at Vancouver, near Quebec, Canada, the Canadian Defense Research Research Division, and has taken delivery on two more Swedish. Delivery of their more Scandinavian to SAS this spring will complete the schedule of six planes ordered.

First of four Canada's first jet production CF-100 twin jet fighters built with Avco Canada built Canada jet engines will soon be completed and ready for flight. First two experimental CF-100 planes now flying are powered with Rolls-Royce Avon turbines.

Where extreme flexibility must be combined with the heat resistance and durability of metal

CMH REX-FLEX Stainless Steel Flexible Metal Hose and Ducting

Whether it's a cross ignition tube for the newest jet job or ducting for the pilot's foot warmer in an air fighter, there's a CMH flexible metal hose product to do the job most dependably and with greater safety. At CMH, years of experience is combined with the most modern fabrication methods to produce stainless steel hoses... hose... connectors... and bellows that assure high flexibility and maximum resistance to fire, fatigue and high and low temperatures.

CMH REX-FLEX flexible metal hose products are made in sizes and types to meet virtually all aircraft requirements. For complete information on specific assemblies to meet your needs, send details of your application.

In the schematic above CMH REX-FLEX flexible metal duct is used at gateway flap side in a current transport model. Note the flexibility which simplifies installation without supplying any of the necessary qualities of resistance to heat and vibration.

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In Canada: Canadian Metal Hose Co., Ltd., Brampton, Ont.

ONE DEPENDABLE SOURCE
for every flexible metal hose requirement

Specialized and Unspecialized Flexible Metal Hose is a Family of Products • Exclusive Sales for Military Operations • Exclusive Steel Hose Sales • Exclusive Sales for Aircraft • Exclusive Sales for Marine • Exclusive Sales for Industrial

PRODUCTION

\$14 Million for Lockheed Planes

Lockheed Aircraft Corp., Burbank, Calif., with awards totaling \$14 million for aircraft, issued the list of negotiated contracts released by USAP for the week ending Feb. 20. Boeing Products Division got \$4,346,385 in awards for aircraft and engine assemblies. Total contracts for the period were \$65,660,773.

Aerial Machine & Tool Corp., Long Island City, which bids for engine work, CI 618, \$27,250.

Automated Machine, Inc., Syracuse, N. Y., manufacturing spare parts, assemblies and subassemblies CI 607, \$91,800.

Atkins-McCoy Co., Inc., Carroll City, Los Angeles, engineering facilities for aircraft, CI 607, \$45,400.

AVCO Manufacturing Corp., Cosmopolis, Philadelphia, CI 604, \$1,214,269.

Baldwin Products Inc., Bunker Avenue, South Bend, Ind., aircraft and engine assemblies, CI 618, \$170,775; aircraft and engine assemblies CI 618, \$1,279,608; aircraft and engine assemblies, CI 618, \$1,615,467; aircraft and engine assemblies, CI 618, \$1,615,467.

Boeing Aircraft Corp., Seattle, Washington, manufacturing spare parts and fuel injection systems for aircraft, CI 618, \$175,376.

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PRODUCTION BRIEFING

► **Powder-Holger Corp.** has been awarded its manufacturing contract with five departments manufacturing new and old factory, new and old factory, and pilot engineering. Subcontracting has more than tripled in the past year.

► **Servo-Tek Products Co.,** Fairport, N. J., has completed new construction adding 60 percent floor area to provide more production space for making electro-mechanical equipment.

► **Hollander Electric & Engineering Co.,** Cleveland, electric motors and electronic control units, will soon start construction of a new 148,000 sq. ft. factory building in Euclid. The new factory will have the structure ready for occupancy by the middle of the summer.

► **Spence Gyroscopic Co.** has been awarded a contract to produce gyroscopes for the new navy shipbuilding schedule. The firm now employs 11,500.

► **Pacific Aerospace Corp.,** Los Angeles, has been awarded a contract to manufacture F-51 Mustang fighters. The new work will increase PAC's existing 500 men employees to the present staff of more than 1,000 at Burbank.

► **Hiroshima, Inc.,** Burbank, has awarded a contract to produce new and old factory, new and old factory, and pilot engineering. Subcontracting has more than tripled in the past year.



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Apparatus provides the
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components for rapid and
economical assembly of your
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digital computers,
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product components,
• Fast turn around
• Inventory build
• Mounting brackets
• Gages and Shifts
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loss of statistical probability have a great future in aviation when applied to fundamental problems of design and operation.

They are now being widely used in quality control, one aspect of using them in connection with the aircraft safety program. The British have led the way in applying statistics to airline safety performance requirements for its airlines. The application of statistical methods is well illustrated in the report on "Time Unlabeled and Air Traffic Control," by Dr. D. E. Gibberley of Cornell.

Statistics can be the tool that will enable the designer to operate to make their technical computations without too much dependence on intuitive skill or on guesswork, intelligent as they may be. Statistics should not be permitted to obstruct the adoption of an often sound solution, but the aviation industry is not realizing the full benefits of the statistical approach to its problems.

In preparation for the talk several authors were asked, "How do you keep your statistics current for things to watch?" and "What special efforts are you making either to prevent or correct it to reduce accidents when one occurs?" Two authors replied that a complete answer would be a large paper by itself, another replied "You can answer the questions yourself through your close association with our work."

■ Builders and Customers—One of the objectives of the queries was to explore the reasons for the numerous criticisms about the "bug" in modern aircraft as evidenced by Maersk Whitbread's reported paper by L. E. Rogers's paper "Disasters As A God In The Design of Aircraft Structures," given before the SAE in April, 1968, the comments by Carl Christman at United Airlines "Service Training at Pan Am for Transport" in paper prepared by Flight Safety Foundation, and by some conversations with operating experts.

The battle is hottest between the airline companies who are called upon to provide facts for designers that show up in error and the designers who build the aircraft according to trained specifications and who are not usually best by the accuracy for own personal between flight and performance.

Christman says "The accuracy is required to maintain safety with the technical requirements of the base airplane and as themselves create a problem which often enters the field of aircraft development."

It is here that the manufacturer must determine between experimental and potential applications. Two others we find the specifications compiled with experimental devices which as themselves represent as each of a safety

problem as the airplane. The use of the customer and manufacturer should be to provide a basic airplane without venturing to new "on the spot" developments in get out of the hole of a "branded approach" to the problem."

And E. K. Koppack says "Since the very nature of it can be seen that, because of the initial specifications requirements which are established by the airlines and other customers, a modern airplane must be equipped with many operating systems which as themselves are complex. Therefore, the customer or air base themselves must to a great extent be the responsibility for the complexity of the modern airplane."

"A careful examination of modern airplanes indicates that the manufacturer have not always installed the simplest and most direct system to accomplish the requirements established by the specifications. Generally systems are found to be complicated with each other, which, in addition to increasing the complication, also increases maintenance problems and, in operation, can provide conditions which might be undesirable from a safety standpoint. The manufacturer, therefore, is also responsible."

■ Engineers—Factor: The questioner asked for a larger section, he replied to us, "The airline cannot afford to remove us out of the testing laboratory for the manufacturers."

Many experts have proposed ways to increase prototype facilities which would help reduce but would not solve all the bugs. One case of trouble is a series of dependability to weight. A sufficient evaluation of the importance of weight versus reliability appears to be in order—a job for a mathematician. From the standpoint of design faults yet to appear that supervising engineering personnel may not have a sufficient amount of background experience in the experience that does not appear to be a purely one engineering study beyond at rapid growth of the industry. The consequent pressure of experienced designers to upper level positions.

On the other hand, the airline may have been hindered in the past is not taking for reduce from low reduction but high experience and computer-aided—mechanics, maintenance in person, live facilities when the specifications were prepared as being acceptable trials.

■ Construction—This has a bearing too. At a technical meeting last June the chief designer of one large manufacturer as an engineer declared that the safety he incorporates in his design depends on what his competition do. So competitive way work better ways.

Construction also addresses safety in the operational field but not as much as in the day when departure into uncertain weather was accompanied by

traffic personnel. Competition is not just between pilots of competing airlines trying to obtain priority for landing; competition can be one of the means why some airlines operate to become more than others, but the nature of the U.S. is a whole domain the highest consideration for their willingness to cooperate and coordinate on matters of safety. The competitive nature of the airline industry is disappearing, although competition of new aircraft may be realized when a competitive situation occurs an airline to put them into operation by a certain date.

Competition is a strong motivation that must be recognized in the development of safety. An article on the "Unwritten Law of Engineering" published in the Journal of the Institute of Aeronautics in 1954 has this to say on competition and progress.

"Because of the perils of security in planning your engineering progress it is one of the fundamental principles of human experience that one must permeate with the pursuit of security as any act to lead to greater danger and insecurity. In a competitive world you must take chances—bold and courageous decisions—else the other fellow will, and he will not just give others enough to keep you running, all out of breath, trying to catch up. So it becomes you as an engineering executive to 'bet' your neck out, and keep it out, by undertaking all development programs, setting a high mark to shoot at, and then working aggressively to reduce your objectives."

This observation is well contrasted with safety if the objectives can be made completely and accurately defined as the basis that they have been in the past. The operator will then be trained the enormous trouble and expense in overcoming the many past trends that have been reinforced by new equipment. Safety objectives should be based on a strong desire to achieve safety for its own sake, not for competitive reasons.

Aluminum Hanger

(McGraw-Hill World News)

London—One of the first hangers in the world to be built of aluminum alloy is going up at London Airport now. British European Airways will use it, possibly to house an Airbus A300, which will start being delivered to the airline in 1972.

BEA has been passing the Ministry of Civil Aviation (parent of the airport) for immediate accommodation.

The hanger will be about twice as large as those now being used by BEA at London Airport. It will provide about 7400 sq. ft. of floor space.

DUCTS...



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Company _____

Address _____

City _____ Zone _____ State _____

or pm

39

1920 (B.C.)*

- Top speed at 31,000 ft.: 465 mph
- Range at 15,000 ft.: 10,105 mi.
- Service ceiling: 31,000 ft.
- Takeoff distance (over 34 ft.): 1700 ft.
- Phase Development—Copyies of the B-23 prototype slowly in existence, for flying with Nieuw, for this jet transport aircraft obviously is a matter of expediency, but availability appears to be a usual solution. The B-23 project was begun in 1940 and the first prototype was finished in 1941 as the SO-10N Jetliner. The craft was dismantled and stored during the German occupation of France, then reassembled and the first flight made in February, 1945.

Two other prototypes were constructed, after which final construction was established in 1948 as the SO-107 Jetliner. First flight of this version was in September, 1949.

- Airlines Use—Designed with the airlines in mind, the Jetliner, SNCASO constructed a cargo version, SO-10C. This flew in January, 1950.

The Jetliner is equipped with two Pratt & Whitney R-1600 D6H in C-148s. First of the Jetliners was sold commercially in December of 1948 for the Italian Airline on the Rome-Torino-Rome-Pisa route. Another craft is an order for ten others. Two of the planes, built by Aero-Alpine are now undergoing final tests. And 15 Jetliners are reported to have been ordered by Air France.

Cooling the Pilot

(McGraw-Hill World News)

London—A cool rack for pilots has been developed at the Institute of Aviation Medicine, Birmingham, Hampshire, England.

Basic physical principle involved is convection—cooling the pilot's air circulation is emphasized by the slow flow of cooling air near to his skin.

The garment is a complex Nylon webbing vest worn to the body. A series of plastic tubes run through the vest to 92 different vents located at points on the body where perspiration is naturally emitted.

Atmosphere in which he has been cooled (currently by an ordinary ice-water cooler, later by rocket refrigeration equipment) is pumped through the tubes and out the vents.

Rate of flow of the air is adjustable 12 cfm.—so that the pilot has no sensation of lifting in the air. Delivery pressure of the air is about 74 psi.

The same rack could also be used to keep the pilot warm at very high altitudes and low temperatures by connecting the air intake to the cockpit heating system.

SALES & SERVICE

B-23 Scores As Executive Plane

Ex-hunter picked by corporation as best meeting its specifications after evaluation of several planes.

As defense contracts continue to increase as does the use of expensive aircraft in operations, need of fast, easy-to-use, low-cost aircraft and other necessary parts. And with the value of aircraft for this purpose undiminished, the major question facing executive plane users is just what type of plane is best for the job.

One consistent plane user, Ford Machinery & Chemical Corp., has come up with a study that puts some answers. The firm was faced with the need for a large, long-range plane, add to its 17,000-sq-ft fleet and its evaluation provides some pointers on the desirable specifications of such a type for any manufacturer willing to work in this line of plane.

►Wide Terrain—Ford Machinery & Chemical Corp.'s basic office is at San Jose, Calif., its numerous divisions, divisions, branches and sales offices are spread over 18 different states and Canada, with 15 of them out of the Midwest. The Ford-Machinery was consistently satisfied for flying over relatively low terrain with four or five passengers. But in handling greater country flights with a minimum of delays and reworking, and with a larger passenger capacity, a new type was felt necessary.

There were the desirable features: high speed, longer range, better high-altitude performance, better high-altitude performance, greater stability and safety in heavy turbulence, and better rate of power to wing loading to afford more safety in wing conditions and to give good short field landing and takeoff performance. With these points in mind, the following types were investigated: Douglas B-23, DC-3 and C-47, Lockheed Lodestar and Ventura and the Grumman Mallard.

►B-23 The Chrysler-Corpusco officials finally picked the B-23 as best meeting their standards. Some of the factors around the other planes were:

- Lack of speed needed against the DC-3 and C-47.
- Desire for more speed, better stability and higher ceilings forced out the Lodestar.
- Landing difficulties and inability to operate out of small fields eliminated the Ventura.
- Desire for more speed and better high-altitude performance caused the Mallard to be dropped.

Pictorial Computer Helps Pilots Score

Fifteen private pilots and 15 with instrument ratings "score" 400 average points on a Link trainer used on a single flight. The score: A special pictorial computer (Aviation Week Oct. 21) installed in the Link.

The score pilots then read the Link using standard needle and pointer instruments, followed emergency course signals for 416 similar problems but tried to work out 80 of them in the 40-second time. Using the pictorial display, every pilot made such turn correctly the first time, with the symbol display, turn was slower, emergency was more made and pilots showed no rapid improvement over other groups.

The pictorial installation was especially built for the test which was carried out with CAA funds at the University of Illinois. It would not be presented for installation in planes in 35 percent time. But its development costs, Auto Electronics Co., says a portable unit would cost about \$100.

Company Planes Base

A group of eleven Basins, Wis., is demonstrating how to use an airport and its facilities for use in corporate plane facility. All cluster services and flying school activities at the field—Herick-Basins Airport—now being closed, only the headquarters at the Wisconsin Civil Air Patrol will remain.

Recognized as the Basins Commercial Airport Co., the installation will be run as a competitive venture organized at \$120,000. There are three flight schools, two large and several smaller, an administrative building and numerous. Further expansion is planned.



SEAPLANE BASE GROWS

Out of the most active base in the East is Lewis-Basins, Wis. Based there, N. Y., which is the headquarters for 14 seaplanes and amphibians. The operation has shown a steady growth since it was established in 1917.

1917 by the operator, who began with a single seaplane, C-2 on the shore and a house. The lake, located between Chicago and Basins, is 4500 ft long and 1800 ft wide.

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J. J. Farnham & Sons
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EQUIPMENT

Huge Savings in Inventory Control

PAA, only partly through long-term program, already has slashed value in half and improved quality of stock.

By David H. Reintger

After swaths of aerial stranding, Pan American World Airways has initiated a painstaking inventory and now it is doing it down for all it's worth. When the nation goes to a complete FAA inventory is expected to be reduced to a shadow of its former self, with the airline picking up millions of dollars' worth of losses from its shelves.

• **True All-Over:** In cutting inventory down to size, Pan Am has followed evidence of vital inventory to other inventory-related problems in other areas—reducing inventory in other areas, such as spare parts, is being done throughout the airline industry, according to sources in the industry. The company has forced inventory to improve its operations, its main inventory objectives—elimination—on a scale that can drive millions of hundreds of dollars out of company coffers.

The evidence: Pan Am has cut \$9.50 percent off inventory around its fleet both in value and in number of items. That alone, it says, has reduced stock value at a total of \$100 million. It has also slashed fueling down from \$5,000 items to a number estimated fairly to fall between 22-27,000. While larger quantities of the remaining items are retained, the sheer to inventory value still is also on the rise in number of items, with an original value of \$5,000,000 (to \$1,000,000) (with the job of reducing inventory cut half down).

• **What Was Done:**—Pan Am has a few months of PAA's inventory reduction. • **Additional and savings:**—Reduced from 175 different types to 15 (14 eliminated). • **Generalized:**—Reduced from 331 different types to 35 (11 eliminated). • **Generalized:**—Reduced from 94 different types to 17 (6 eliminated). • **Reduced:**—Reduced from 170 different types to 32 (128 eliminated).

All items retained, or newly-acquired after elimination, to replace materials eliminated are being distributed to a subinventory (less-throughout the airline's Atlantic, Latin-American and Pacific Asia divisions).

• **Minimize Value:**—Significantly, Pan Am is going over an AN net member basis wherever possible to identify long inventory items. Thousands of AN parts, mainly identified under

associated part numbers, now are listed under specific AN designations for purposes of inventory and to avoid needless stocking of identical items under different part numbers.

Underlying this move is conformity with the company and conformity with the Air Force and Navy. The airline flies, mainly, the inventory, which is possible on an AN basis will be of "unmistakable value" in the event of an actual emergency.

In view of the national and international context, Pan Am's drastic inventory reductions is hardly. As far as procurement is concerned, the airline is, in effect, closing its doors for whatever reason the airline may be using. It has played itself of a good working point in these respects:

• **A clear, precise picture of inventory:** now is being developed at a time when, when it comes, military needs are tightening availability of equipment, and airlines are demanding more parts for equipment fleets. Pan Am has placed itself in an exposed position, but, if done right, it will be a good working point in these respects.

• **Wanted duplication of parts:** is being eliminated by fully exploring the necessity of a few items to function in the place of many, and, in some cases, by purchasing needless stocking of thousands of identical items "hold-ers" under different part numbers, and, in some cases, by purchasing individual "spare" items.

• **Higher quality of stock:** stocked less than each category of parts. Other on item previously accepted has been dropped in favor of a new one that does the job better. The airline's inventory efficiency with a main-line inventory.

• **Finals:**—Pan Am's inventory reduction, less paperwork, less space in the plant, lower shipping, and, in some cases, less inventory, is being done by Pan Am as a business grating the world. It means a smaller number of different parts can be ordered in greater quantities at lower cost.

• **Consolidated inventory:** is continuing, yearly and monthly, with needs for material from digging deeply into all phases of procurement and supply, putting inventory, more on a consolidated basis, and, in some cases, on a consolidated basis, and, in some cases, on a consolidated basis, and, in some cases, on a consolidated basis.

"general supply" items can be added as much as possible in fixed quantities at fixed periods.

Present inventory contracts can be negotiated with suppliers who, knowing the airline's needs over a given period, can more easily schedule production and meet airline needs. Pan Am can give government agencies handling problems an accurate estimate of its needs.

• **Flows:**—A group of the entire field of procurement has moved from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

• **How Much Saved:**—All these points lead to millions of dollars the airline can expect to save in coming years through standardization, reducing inventory and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

That doesn't necessarily mean that Pan Am itself will not have a job of reducing inventory in 1980. The job of reducing inventory in 1980, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

Henry J. Berke, assistant vice-president in charge of services of the airline, told Aviation Week that on the basis of present information "all who are concerned with the proper management of inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory."

Pan Am has been spending recently about \$4.5 million yearly on inventory, not including purchase of aircraft. It had to be flown, and Berke did not do that, the annual savings would be about \$2.5 million.

Berke and his associates usually are retained in estimating total savings expected from a project not yet completed. A sale that would be the savings of 10 percent has an estimated 10 percent savings for the airline.

Current evidence points to the probability of savings representing 30 percent or more of the annual procurement bill, although Pan Am did not say that.

In addition to the fact Pan Am has been spending recently about \$25 million for procurement, two other char-

acteristics of the airline's inventory are more likely to approach 20 million than 10 million when the program is in full swing. A \$4.5 million reduction in inventory, representing a 50 percent cut in that part of the airline's inventory, has been estimated, and the savings has been about 10 to 15 percent of the value of total inventory.

It's noticeable to procure any savings could at least in part be repeated within a year because of inventory turnover. A 20-percent saving, represented in a yearly bill of about \$25 million would run around \$4.5 million—approaching Pan Am's net profit for 1979.

• **How:**—The airline started having the groundwork for standardization program in 1965. Its first step was to list in one place every item stocked by the three divisions. This task was headed up by Robert Hamilton, system director, services of supply. Hamilton and his counterparts, system managers in the three divisions, checked inventory lists collected from those who produced all over the airline's inventory catalog—running to twice the volume.

Information gathered in compiling that catalog was used by Pan Am already. Inventory management systems on a worldwide scope under multiple contracts with the airline services during World War II, "making do" with whatever parts could be obtained at a time of critical shortages, followed by his commitment to purchase items from local sources in an attempt to "replace critical assemblies."

Unwillingness to be replaced by a few men from Standardization Committee, started by various groups in the three divisions who are experts on the items under scrutiny. The committee now is headed by Pan Am's chief engineer, J. V. Hensley, chairman. Robert Hamilton, vice chairman. W. J. Murray, standards expert, Airline Division, Ralph DeLina, standards expert, Latin American Division, and Robert M. Ben, standards expert, Pacific Asia Division.

Formerly, PAA's three divisions assessed inventory in purchasing equipment by their own methods, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

Now, the airline's inventory is being managed by a single system, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

• **How It Works:**—All groups throughout the airline are notified with standard catalogs to guide procurement. New standards are added in increments, after consultations at the three divisions. If the divisions cannot get

together on a part, the Standardization Committee is requested to handle some an arbitrary decision.

He may decide, for example, that all divisions must use the same part, if there is sufficient stock, prevent one of them to devote. If a division is not satisfied, it may appeal to President Gilchrist, Pan Am's executive vice president.

Items under study are broken into nine general inventory classifications, split into two major groups. Items in the first five inventory classifications are designated "FIVEA" (light equipment, spare parts and accessories). The group includes approximately 55,000 items and is valued at 78-60 percent of total inventory. Items in the second major group (including items 7-9) covering new materials, aircraft hardware, and other supplies number about 55,000 items and are valued at 20-10 percent of total inventory.

It is this part of the inventory that has been ordered from a value of about \$5,000,000 to \$1,500,000. A report on standardization efforts in the "FIVEA" group will be made in the next few weeks, but longer is expected soon.

Evidence that substantial savings are expected in this group is carried in a statement by Pan Am that "the committee is fairly sure that the standardization efforts in the 'FIVEA' group will be made in the next few weeks, but longer is expected soon."

High Altitude Unit Pressurizes Radar

An air compressor, designed for positive operation at 50,000 ft, rebrake principally at pressurizing aircraft radar installations with dry, reliable air, has been developed by the Boeing Company of Lake, Wash., and Chicago, Ill.

The pump, Model Type HD30, is used by the Air Force will deliver in needed atmosphere at 50,000 ft, a minimum of 50 cfm in volume at air while maintaining 33 in. Hg absolute pressure. At sea level it has a capacity of 1750 cfm at 100 psi, Boeing says.

The fan system positive starting and operation by their own methods, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory, and, in some cases, from the airline's inventory.

The 5-1/2 hp compressor is powered by a 1/2 hp motor, with a c.c. 4000, single phase, 208, 240 volt, 50/60 Hz, operating at 7200 rpm. Only ball bearings are lubricated and no maintenance lubrication is required.

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Navion NEWSHEET

'81 SUPER NAVIONS SOLD OUT!

In 27 years of building and selling aircraft, we've never known a greater demand for Ryan planes. The entire production of the better-than-ever '81 Super Navions is sold out in advance. Hundreds more would be needed to satisfy the market demand.

PRODUCTION SCHEDULES

Due to an increase in high-priority military work, 1981 Navion production is being limited to about one-third of the number originally scheduled. As soon as the critical international situation will permit, Ryan will resume full-scale production of Navions for the civilian market.

SERVICE, PARTS AND USED PLANES

While civilian Navion production is curtailed, Ryan Customer Service and Spare Parts activities will be in full operation. In addition to service and parts, Ryan Navion distributors will continue to offer the best in reconditioned, modernized Navions for purchase or charter.

RYAN'S ROLE IN NATIONAL DEFENSE

Ryan makes many vital military items including Ryan-developed jet-propelled pilotless planes, huge fuselage sections, special-type fuel tanks, control surfaces and other major airframe components, as well as stainless steel parts and assemblies for jet, rocket and piston type engines. Ryan is also doing design and development work on many important advanced-type engineering projects.



NEW AVIATION PRODUCTS



Controls Fuel Flow

A purpose-built developed and produced by the Meltron Corp. now is being used to control automatic selection of fuel tanks in the Northrop P-99 Scorpion, according to the maker.

Recent qualification tests by the company, show the valve to be extremely rugged, resistant to high frequency vibrations, yet sensitive in a high degree. It meets AMC (aircraft material and certification requirements) and is of explosion proof construction as accordance with USAF Specification 41065 B, adds the firm.

Other applications of the valve in high installation areas will allow to control alcohol driven pumps, fuel tank pressurization control and use in jet engine fuel control systems.

Meltron has designed and is now fabricating a variety of automatic control switches for use with water, alcohol, propane, hydraulic fluids, liquid oxygen and acids. Address: 950 N. Highland Ave., Los Angeles, Calif.



Bellows for Aircraft

Flexible, welded diaphragm bellows, designed for high pressure and in-vitro, for shell sealing and for applications to equipment handling high temperatures, gases or viscous liquids have been developed by Ilmorog Corp., Inc.

The units have reinforced construction and, according to Ilmorog, can withstand constant pressure stress with out distortion. They are engineered to meet specific needs and to equal the

operating life cycle of any equipment to which they are used.

Some typical applications:

- Seals for torque tube drives in jet engines and rocket motors
- Couplings to accommodate high frequency vibrations in aircraft exhausts

Stresses before are made in various sizes and gauges in stainless steel, Inconel, Monel, nickel, steel and other weldable alloys. They can be supplied with fittings to any specifications. Address: 41 S. Sixth St., Newark, N. J.



Relay for Missiles

A relay weighing less than most of an ounce has been developed by Hideo Industries.

The unit is designed for use in aircraft and guided missiles according to the company. It has a dynamically balanced structure which reportedly provides high resistance to vibration, shock and sudden changes in acceleration. Designated Model 1001, it is a single-pole double-throw type and operates on 24 dc. Contacts are rated for one ampere non-inductive load. Address: 1111 W. Olive St., Burbank, Calif.

Research Craft Motor

An explosion-proof motor "designed as an emergency stand-by unit in a submarine rescue craft" has been developed by Electro Engineering and Mfg. Co.

The motor will operate in an ambient temperature of 70C. Motor windings are insulated and high temperature materials are used throughout, says the maker. Duty cycle is 1 min. at 1/2 hp., 30 sec. at 2 1/2 hp., continuous.

Extra notably including gear box, weighs 224 lb. EEMCO also is marketing a direct-drive, hydrodynamic motor designed for operation at 7200 rpm. The unit drives the pump impeller di-

rectly through an internal spline coupling within the structure shaft. The design, the company points out, eliminates vibration gaps between motor and pump thereby increasing overall efficiency and reducing use of materials. Address: 4617 W. Jefferson Blvd., Los Angeles.

New Airline Seat

A new type of airline seat which adjusts automatically with the shifting of the passenger's weight has been developed by Joyce R. Bennett, assistant to the president of Borek International Airways. The seat framework is of tubular configuration and the body and a of fabric design that together with springs. Also featured are a built-in headrest that can be folded back and a built-in footrest.

The seat is constructed to absorb turbulence shock. It can be used in a sloped-back sitting in the standard airline seat space. Mr. Bennett has been developing his invention in military and civil aviation agency engineers and in airline officials.

ALSO ON THE MARKET

Weatherproof skater lights for automobile lighting and other industrial and floodlighting applications are mounted on a swivel. The unit can be swivel-mounted on a swivel. Made by Stone Mfg. Co., Elizabeth, N. J.

Vacuum test chamber complete with pump and direct reading altitude gauge is designed to test aircraft components at its low pressure point up to the equivalent of 60,000 ft. Made by Tinsley Engineering Co.

Kera-Kloth, chemically treated latex cloth is one operates both clean and pressure (clean and rugged from fogging and discoloring. Made by Clad Products 355 E. 45 St., Brooklyn 1.

"Snap-grip" holder can be mounted on wall or in ceiling to hold reports, notes, maps, charts, etc. Device has non-scratching clip with rubber roller that will not mark or stain. Made by The Stetson Works, New Britain, Conn.

Flexible couplings for equipment driven by electric motor rated up to 1 hp. are designed to absorb operating strain, absorb momentary shock vibrations and accommodate shaft misalignments of as much as 2 deg. angular and 1/8 in. parallel. Made by Lord Mfg. Co., Erie, Pa.

AIR TRANSPORT

Avionics Navigation Work Spurred

Modernization step-up speeds development of present and new all-weather aid equipment projects.

The modernization step-up of current development for civil production means Air Navigation Development Board will soon sponsor several new research development contracts. And progress on many present development projects, already moving faster than originally planned, will be speed even more.

Among the all-weather equipment (AVR) in parking now are:

- **Measure radar DME.** No light plane or light-plane radar distance measuring equipment is built yet, but VOR gear for both is already operating.
- **Avionic transponders.** (See Roberts) have been hurried more than any other development recently. But testing of the complete development model, presently set for March-April, is delayed because Air Force changed the band specification. Production contracts will be let based on tests of the model at least completed prior to band specification change.
- **ILS and PAR equipment.** Present production models of ILS and precision

approach radar are undergoing extra tests to tie down the exact degree of accuracy of each, under selected test conditions.

• **Automatic precision approach radar development** has reached the point now where a typical airborne representative of the ILS type will be used this spring on PAR approach, just the way the pilot uses ILS. The question for the future is:

- **How far can an airplane go away from ILS instead of, or along with, ILS on approach?** First model will be installed this month at All-Weather Flight Station, Wright Field. Originally sponsored by Space Groupings, this project is acceptance test and in study for evaluation at All-Weather. The 1000-hr. development model of Federal Telecommunications Laboratories is ready for acceptance test now by

Western Laboratories, the original sponsor. (Present contract: one 1000-hr. model.)

• **Two new ILS systems.** The two ILS developments aimed at solving the accuracy of accuracy situation, that level the broader beam are already ready for Air Force evaluation before present development. The CAA has been in the problem, in Air Force test center, by a parallel approach, to narrow the beam and focus it all as the one direction. The Air Force development of beamside, or in-line, antenna, commencing the beam by phase reinforcement and reflecting Air Force latest ILS present development away from comparison of the type of development and the CAA development.

• **1000-hr. and 9000-hr. ILS.** The experimental development model of 3000-hr. ILS by Federal Telecommunications Laboratories has been accepted and taken over by the CAA. It was available for testing in the field. The 5000-hr. ILS of Space will be ready to conduct acceptance tests by mid-July.

• **Traffic control aid.** ANDB plans to let development contracts within a year for potential traffic control display. This will be a flat map on which mechanical markers automatically move across the map in the course and speed indicated by a mechanical pointing board by the traffic controller when he gets position reports. Each traffic control center with such a display would be able to tell the exact control status of the present need for phase shift. On present, the traffic controller, after giving over control, ATC No. Five would merely push a button on his mechanical pointing board and the information would turn up on the next board of ATC No. Six. The pointing board will carry all pertinent data. The potential traffic control display can store identity, position and altitude.

In the alternate program, area will activate the automatic display analysis, and the markers themselves may be electronic gear instead of mechanical help.

The traffic control project of ANDB is still in the requirements research stage because interpretation of requirements is subject to considerable controversy now. ANDB has issued a candidate traffic pointing system project to work on the problems in laboratory form, eliminating all but the most pressing solutions before understanding flight tests.

• **Automatic heading-bearing direction.** The Air Force development of automatic heading-bearing direction aid is under test at Wright Field Station. Present thinking calls for this to take over the heading control from the ILS at about 9000 ft.

The Air Navigation Development

Board wants quick development of two types of small DME.

• **A medium, high-quality version of the standard gear now set for large transport and military planes.**

• **A "low cost" version for private planes.** (Just a change in the way the DME is built, without the fancy trim.)

The development of both types of small DME would probably follow the pattern of small VORs. The two standard Air Force Navy versions of VOR are the ARN-115 of Collins Radio and the ARN-24 of Federal, both of which are high performance units. These are the standard of the VORs, sets of No. 100, No. 1000, No. 10000, among others, which serve the private flying field.

For further development of small DME aids, ANDB would probably get CAA to sponsor development, for both types—perhaps two contractors for each type.

The small plane DME gear will probably have external timing, manual control and voltage/potential of inherent control of radio control.

Greater Use Seen of Flying Ambulances

A recent medical study of 14,000 patients served by Military Air Transport Service points toward a growing place, as well as with surface transfer, for subject.

The study shows that almost all patients may be moved by air transport. "Today," the report, "the growing demand for the service is the result of the medical care system as a whole, and the fact that the medical care system is becoming more and more dependent on the medical care system." The study shows that the medical care system is becoming more and more dependent on the medical care system.

One third of the patients contained were seriously ill. This figure is the one problem areas even look to open up the heavier large-scale travel by the air at the center to specialist centers and medical centers. That problem is a solution of the risk in a passenger plane. A suggested solution is to use cargo planes.

The recently developed equipment used by MATS is the standard, efficiently and comfortably is quickly installed in an area out of a plane. Thus, a few fittings installed in delivery cargo planes would make them capable of transporting patients in addition to cargo.

Medical cases and patient loads should offer little problem, as solution from health manager looks at what the patient appears want.

The study of MATS cases showed

that only seven percent of the cases require medical attention of any kind during flight. Most symptoms were due to effects of motion, altitude in the case of sick. There were more symptoms of motion sickness, but only one case of motion sickness. The most common of such symptoms is 97 percent of the cases. Most frequently, the patient was moved to the ground. Only one percent of such symptoms is 97 percent of the cases. Most frequently, the patient was moved to the ground. Only one percent of such symptoms is 97 percent of the cases.

Less than one percent of the patients were reported for an emergency. The most common of such symptoms is 97 percent of the cases. Most frequently, the patient was moved to the ground. Only one percent of such symptoms is 97 percent of the cases.

The effects of air travel on certain diseases and injuries may be viewed as a problem, but not one considered as a disaster. The effects of air travel on certain diseases and injuries may be viewed as a problem, but not one considered as a disaster.

The report was prepared by Col. R. E. Smith, Jr., USAF, Medical Corps and Dr. James A. Reilly, Jr., USAF, Medical Corps. It appeared in the Jan. 20 Journal of the American Medical Assn.

CAB Urges Fare Hikes On Coast Coach Routes

Civil Aeronautics Board has "upped" all airlines serving coast routes of the San Francisco-Los Angeles route to raise coach fares from the present \$9.95, or 1 cent a mile, to \$11.75, or just over 17 cents a mile. This will be the top end of a later industry-wide boost of all coast fares.

The Board gives its reasons for current increases in operating costs. On almost all scheduled coast routes in the U. S., the number of airlines serving a route has increased, and the cost of operation has increased. The Board gives its reasons for current increases in operating costs.

The Board states the reasons as follows: "During the past year and the early part of this year, there have been a number of airlines serving a route, and the cost of operation has increased. The Board gives its reasons for current increases in operating costs."

United Air Lines has already announced CAB by raising its coast fare between Los Angeles and San Francisco to \$11.70, or 17 cents a mile, and the Board of CAB.

Other airlines giving scheduled service on that route are Western Air Lines, California Central Air Lines and Pacific Southwest Air Lines. The latter two are charter airlines, and the Board will be in a position to set the fare. The Board gives its reasons for current increases in operating costs.

CAB urged that rates be raised by Max. 1. United has already announced it will comply.

NWA Reorganizes Operations Setup

In a shakedown of its top operations, operations and administrative personnel, Northwest Airlines last week moved to tighten up its organization, presumably as a result of its operational record of recent months.

President Carl Douglas has made the following line operations changes:

- **K. R. Ferguson**, who has been vice-president for operations and engineering, has been replaced by Frank B. Gentry, formerly western region vice-president.
- **M. R. Fowling**, who has been operations director, has been named to the post and has duties combined with those of Dudley S. Cox, manager of flight operations.
- **John E. Gentry**, manager of mechanical operations, has been named and has duties taken over by E. B. Gentry, formerly western region vice-president.
- **D. B. Benson**, chief engineer, will be assigned to report directly to John E. Gentry.

Washington sources said that the changes made by Douglas followed a series of conferences between Cox, CAB and Airlines and Northwest Airlines in regard to the current operations difficulties of the airline, including accidents and some incidents in which there were no serious aircraft damage or injuries.

It was understood that the personnel changes were made by Northwest with approval, without specific recommendations from the government commission, except one that the company separate its inspection setup from its maintenance operations more completely than it had been.

Brazil's New Rule

The Brazilian Air Ministry has issued a regulation defining whether or not to grant an airline license to applicants.

All new licenses will be issued for a maximum period of one year. If the airline is not successful in its operations, there would be no new license. The airline would be in the first three, he knew he knew.

MATS Pacific Lift Utilization High

The Pacific division of Military Air Transport Service, based more than 10,000 hours of transport flying time in November.

The division came within 5 percent of its theoretical "target of perfection" for reducing turn-around time and saving utilization. "Perfection" is de-



PUSH-BUTTON FLIGHT INFORMATION

Push a button and information on any TransCanada Air Lines flight can be at your fingertips on the screen. The speed device is being used extensively by air travelers to get information quickly on any

lot of daily flights, from flying time and on miles to one of the entire steps in the U. S. and Canada. By pushing a button, the device is being used extensively by air travelers to get information quickly on any

WITTEK

STAINLESS STEEL

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HOSE CLAMPS

For Over a Quarter Century
The Standard of the Industry



The Wittek Type FB55
Aviation HOSE CLAMP

Utilizing the Wittek Flaring Bender, the FB55 has been tested and proved for dependable service on all types of aircraft applications.



The Wittek Type WWD
Aviation HOSE CLAMP

Available in all standard aircraft sizes, the WWD is also furnished in large diameters up to 1 1/2" for duct and other special applications. Permits easy installation when hose is in place.

Must contain AN specification
and have CAA approval

WITTEK 

MANUFACTURING CO.
4308 W. 24th Place, Chicago 23, Ill.

tended to exact performance of the pressurized flying boom.

Turnaround times for C-94s and C-97s at the MATS Pacific division at Hickam Air Force Base, Tokyo, have dropped steadily, MATS reports.

The C-94 of the Truist Carrier Command here also showed improvement, says MATS. The cargo planes played major parts in operations due to the long flights from the U.S. to Japan, whereas the MATS planes operate from Hickam Field.

CAA Announces Airport Program

CAA's latest National Airport Plan sets civil airport improvement needs of the U.S. and revises at \$934,935,930 for 1963 reports for the three-year period—calendar 1961-1963. This includes work on 1777 airports not yet built and additional work on 2515 already built.

The new National Airport Plan (as of Dec. 30, 1959) sets civil airport needs at about \$400 million a year. But only about \$40 million may be spent for civil airports in the coming year, if Budget Bureau recommendations are followed. This compares with a previous rate of about \$60 million annually.

Reason for the big cut in civil airport improvements is the whopping new military airport program, which now totals \$1.9 billion in fiscal 1962, compared with almost nothing spent since World War II's end.

But the big hole in civil airport programs will be partly filled by the military construction program's lifetime cost estimates figure of 25 percent for military bases, the military has now contributed about \$125 million directly applicable to the National Airport Plan needs. So the combined total of about \$165 million annual contributions could to civil airport planning will equal about half the \$360 million called for by CAA.

The National Airport Plan outlines "needs," as analyzed by the CAA Office of Airports.

If the plan were followed through, the total program would cost up \$461,194,080 and the federal government would pay up \$445,458,008.

The plan for the next three years includes 66 heliports, 312 airports, 575 large airports (Class A and large), and 4140 small airports (Classes 1, 2, 3).

Wittek's studies on large airports is reflected at \$448,380,000, the small airports need \$445,600,000. Thus, 44 percent of the money is needed for the 575 largest airports, 30 percent for about 4600 small airports, and 2 percent for the approximately 400 heliport bases and heliports.

ATA Supports WAL On Mail Pay Appeal

An Transport Assn. has asked the Civil Aeronautics Board (in opposition to an advance on behalf of Western Air Lines) Western is contesting CAB's decision that the \$1,000,000 holds on sale of its Los Angeles-Denver route is revenue deficient, and that for mail compensation already paid.

CAB says an effect that since the government gives the airlines the route, the airline must pay back to the government the penalty from rate of 2.

Crucial words in the Civil Aeronautics Act are the following in Section 446 (a): "The authority in fixing... has and reasonable rates of compensation... shall consider... the level of the air carrier... for compensation... to ensure performance of the service)... and, together with all other revenue of the air carrier... to enable such air carrier under official management to conduct the development of air transportation."

CAB figures that the "all other revenue" mentioned in Section 446 includes the profit from sale of a route.

ATA is blamed over the precedent by which CAB would make retroactive claims of overpayment of mail pay when an airline realizes a profit on sale of a route or capital asset.

The Post Office has countered ATA's position to intervene in the case says mail was acquired by Western. The PO says ATA is not only too late but has no direct interest in the case.

The Board did not rely on any past precedent in making the show-cases order to Western setting mail pay rates, including reduction of 1947 pay \$747,541. Little earlier precedent is available. For instance, the American Overseas Airlines sale to Pan American World Airways was at book value, so the problem of profit on route sale did not arise.

Capital Rings Bell on N.Y.-Atlanta Run

Capital Airlines' new Atlanta-New York route is being scrutinized by the Board about a 50-percent load factor that two weeks of operation and is giving formidable new competition for Eastern Air Lines. This new service also bears on Delta Air Lines' application to merge with Eastern, since 50-percent load factors are a basic requirement for New York-Atlanta route from Civil Aeronautics Board.

Until Jan. 16, Eastern was the only airline operating Atlanta-New York route. Eastern, using 50-passenger Constellation, Eastern now is up against Capital's more or less service,

actively promoted, using a 30-passenger Constellation Constellation that has a longer service, complete with postal paid and cargo loads.

Capital got CAB approval of Atlanta-New York service three years ago. But Capital didn't use it then because financial problems in itself growing since then prompted new routes. Almost everyone but Eastern kept Capital still had the option of opening the service.

Delta Air Lines made application last summer to CAB for merger with Northeast and a New York-Atlanta route as a result. A joint Delta plan was for the first between the South and the Northeast, via a New York-Atlanta route.

Capital's widespread promotion and negotiation of the service last month got a new law on southern service to the north.

Now a Capital ally, "This route puts our airline on Main Street."

Hawaiian Scheduled Air Travel Hits High

Scheduled airline travel in Hawaii hit a new high of 427,634 passengers in 1959 and the estimated 400,000 passengers second highest total.

Total travel in 1949 was 361,663 passengers.

Hawaiian Airlines Ltd., 21-year-old veteran of island flying, carried 173,625 passengers while its new competitors, which now include TWA—The Aloha Airlines, carried 15,579 in its first full year.

Both were up from 1949 when Aloha had 55,574 in seven months and Hawaiian 10,638 for the year. But Aloha was still struggling along in the red, hoping for a U.S. mail subsidy to bolster it.

Capital Buys Two KLM 749A Conquies

Continuing its reduction the board head policy, Capital Airlines has bought two Lockheed Constellation L-749As for delivery January, 1962. Eastern Air Lines is negotiating to buy five more of the same.

These are seven Conquest KLM Royal Dutch Airlines is trading in to Lockheed Aircraft Co. for the bigger Super Constellation L-1049s.

Lockheed will modify the L-749s in time for Capital to about the same heavy layout as the L-1049s Capital is already operating. (These were also originally KLM planes bought by Capital last year as a lease-purchase deal.)

Capital means say the company would probably not have bought any new planes this year, but it figured

there are all that are likely to appear on the market for some time.

The company is making downpayment on the two L-749As now, will make even further payments this year, and final payments in full as delivery nears. The company will need no new financing to pay for the planes, under normal business conditions.

Tail Will Fly Navy Catalinas in Pacific

Transoceanic Air Lines—low bidder among 12—has been picked by the Navy to supply an service for the U.S. Pacific task force.

Transoceanic will use four Navy-leased amphibious P3V Catalinas, supplying its own crews. The planes will make the round of the Pacific from non-military airports once a week for 16 months. Tail-rotated operations in that period will cover to 400,000 plane miles. Passengers, cargo and mail will go by Transoceanic's new service from Guam.

The Navy wants private airline operation, if the service can be supplied cheaper than any. Contract terms have not been announced yet.

Tahiti-Hawaii Run Proves Feasible

Tahiti-Hawaii Airways has made its first DC-4 explanatory flight to Tahiti using a chartered Transoceanic Air Lines plane. With the flight a success, TIGA plans to run a monthly schedule—the first to about Feb. 28, 1960.

Time for the DC-4 run was 16 hours, including Tahiti-Hawaii, via Canton, French Polynesia at Tahiti and mail for all stops on the return trip.

The new route goes first to Canton Island, then to Tahiti, obviously to be as soon as possible, according to Transoceanic's reports, no commercial carrier has ever there. This part of the flight ends at Bora Bora, French Society Islands, as a World War II transport. Law here goes to Tahiti via amphibious plane. The complete route is about 1800 miles each way.

Ozark Starts Service St. Louis to Tulsa

Ozark Air Lines last week started operating its St. Louis-Tulsa route six times a week, with Springfield and Joplin. The line brings Ozark's present service to 21 cities at night and daytime rates, with direct stops at St. Louis, Memphis, Chicago, Indianapolis, Tulsa and Los Angeles.

The St. Louis-Tulsa route is Ozark's first to be activated. Joplin City,

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Chief, operates only DC-3 service. The carrier is negotiating to have American Airlines handle all ground operations at Joplin, Tulsa, and Springfield.

The new segment will be served by four flights daily—two arrivals, two departures.

SHORTLINES

► **Air Express**—December jet express revenues in the New York area totaled \$724,403, just one percent under the record December of 1946, and 24 percent over a year ago. Number of ship-ments—192,243—was up 5 percent over December 1946. Average weight per shipment rose steadily in 1949, from 19.5 lb. in January to 27.2 lb. in December. Total 1950 weight in 1950 was 25 million lb. up 24 percent. Seasonal patterns are distinct in the second half by the Kansas war, which caused a steep decline in August.

► **Air France**—Carrier transported 25,000 passengers and net revenue in flight over the Atlantic in 1950. Company converted all its flights to 12-passenger capacity in the year, giving 30 percent more "stretch room" to each passenger. Company reports higher profits, both passenger and cargo, this year and plans to add more flights.

► **All-American Airways**—Foster claims its percentage increase in passenger, mail, and express traffic 70-80 per cent greater, all scheduled domestic lines. The 157,313 passengers carried was 185 percent over 1949. Passenger miles rose 115 percent to 21,280,000. December passenger carried amounted 10,147. AAA claims for 1949 include March-December only.

► **American Airlines**—Mail pay was only 5.1 percent of total income in 1950. Mail pay was \$6,777,000 and revenue came to \$11.4 million. American's revenue minus return on \$100 million invested, for the five years 1946-50, is 2.25 percent. Gross revenue for 1950 exceeds \$115 million, with earnings over \$130 a share, the company estimates.

► **British Overseas Airways**—BOAC says its Ory Canadiana fleet has averaged 6 hr. 3 min. daily station for 14 years. Last ending the groundling July 12-Aug. 15, 1946, only 6 hr. 15 min. for the 13 months of service was 5 hr. Ory Canadiana was not in spring and summer,

1948-50. Canadiana was trans-Atlantic service awarded for its service 8 hr., 25 min. The Carsons went to London South America route via the Carib-bean in 1950 when South America was put on the North Atlantic.

► **Canadian Transport**—Dept.—Department has granted \$120,000 as subsidy to the Royal Canadian Flying Club for training private pilots in 1951.

► **Mid-Continent Airlines**—Company's scheduled Montreal route shows net profit for 1950 of \$132,005, or 94¢ profit a passenger mile. The company with 1949's \$146,024, or 84¢ profit a mile then outstanding. Operating losses of \$8,788,981 for up 10 percent over 1949. Passenger miles, 105,465,170, compare with 1949's 100,217,332. Operating expenses are up 5 percent to \$7,568,549, partly because of Com-air service started the last seven months of the year, and the new Rome City-Chicago-Montreal service started Sept. 28.

► **Pacific Northern Airlines**—Alaska line's passenger miles gained 19 percent to 18,516,000 in 1950, with number of passengers up 24 percent to 25,862. Cargo ton miles gained 77 percent to 201,179. Load factor, in revenue ton miles only, was 55 percent in 1950, 49 percent in 1949.

► **Pan American World Airways**—Company is negotiating standby contracts or commitments to add the Defense Dept. in establishing and operating possible future transoceanic and trans-Asian services. PanAm built and opened the vital military North Africa and other air routes of World War II. Company has added a third weekly Sunday flight San Jose-Panama, Trinidad, for heavy tourist travel.

► **Powers Air Lines**—Foster's 1950 passenger miles rose 94 percent to 37,927,797 in 1950. Passenger 90,183 and ton miles in 1950 was 35 percent of all carrier mail carriage, while the line's total pay amounted to only about 8 percent of carrier total pay.

► **Trans-Canada Air Lines**—Company plans to start five flights a week, Montreal-Panama via London on Apr. 1. TCA will use DC-4s plus its partnership with Air France's Constellation. TCA top will take 15 hours.

► **Trans World Airlines**—Carrier claims it has lost more passengers from the U.S. to continental Western Europe since 1946 than on any other route. Total trans-Atlantic service in the five years comes to 960 scheduled passages. TWA now serves 25 cities in 17 countries, with their routes connecting to domestic

TWA routes serving 80 U.S. cities. TWA now offers 32 trans-Atlantic roundtrips per week.

► **United Air Lines**—United has completed 10,000 crossings between California and the Hawaiian Islands in eight years. This includes Air Trans-pacific's scheduled flights started in 1943. Company now operates 12 monthly weekly, using Shortliners.

► **Western Air Lines**—Company has eliminated double baggage checking on U.S. international air line flights for passengers using United and 11 international air carriers. Company plans to build a 300 x 300 ft extension to its maintenance and over-

haul line at San Francisco. Present base occupies a 57 million sq ft. United carries first passengers to Honolulu for over two years by Pan American, not counting through passengers to the Orient. SNA markets show. Company's major account for damage to aircraft is maintained at the equivalent of two DC-6s and one Stratocruiser.

► **Western Central Airlines**—Company earned 85,810 passengers in 1950, 16 percent over 1949. Ton miles are up 78,536, or up 93 percent, and express, 45,101. See miles in pg. 116.

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Is Patriotism for Kids?

The United Auto Workers of CIO were about to enter their sixth week striking against Fairchild Aircraft divisions as these words were written.

We hope the strikers' home town newspaper in Hagerstown, Md., has been publishing these two pictures we have seen of the Fairchild C-119 cargo plane at work in Korea. The strikers' plant is the site of one of these two events.

On his integrity of union leadership determined to reach — as we see in the case of the Brotherhood of Railway Train men's shameful strike — that obnoxious Americanism is now held to be more than in this neighborhood stormy pet?

It is about time the United States Air Force on some other branch of the national government enters this ridiculous picture and tells the Fairchild strikers to go back to work while the organizers for both labor and management try to work things out.

After Senator Taft's startling election victory in Ohio the Administration in Washington should no longer have any doubts that in dealing with labor it must choose between losing votes or losing a war. Real Americans know very well where they themselves stand and a lot of them are conscientious laborers. When in this country given to rebel against union leadership that pulls strikers against the country?

A Public Servant First

The deli act of "having fun" in Washington sometimes seems to be a more vital concern than it is at the Capitol. Federal office holders frequently prefer it to serving the public conscientiously and honestly.

In Washington, money is a rare or worthwhile item is rejected or passed-by because it came from the "wrong" source as because it shows up a mistake in the same code. Even someone who has worked long in the national capital has not seen many examples of this type of public waste that he considers yours for a clear-cut rule of forbiddance or willingness to right a wrong even at the expense of "honesty."

Last week's newspapers reported such a move by Air Secretary Fletcher that we think it is a good sign.

The Commandant of Mitchell Field had requested that Capt. Charles A. Hill, Jr., a colored Air Force reserve officer, resign his commission or seek a hearing on disciplinary charges. One of these charges was that he had been seen reading the Daily Worker, a U. S. Communist daily newspaper, and other charges concerned his father and sister of having been involved in the past with groups of questionable loyalty. The requested letter to Capt. Hill was signed by Col. R. W. Hall, Assistant Director of the Air Commandant's office personnel, Hill told the N. Y. Times. The assistant had been dismissed three times for politics in World War II.

Secretary Fletcher took over the case personally and in a matter of hours ordered the charges, ordered the investigations dropped, granted Capt. Hill's continuing was noted and expressed great publicly that charges had been lodged against him.

After reading of such cases you have a new appreciation for the capacity of our founding fathers in demanding that a civilian hold itself of such unbecoming military service. And you appreciate that not all conscientious and able public servant will accept a widely responsible office in these days and there to receive one of his own officers and sacrifice "honesty" to justice and country.

Another Investigation

A military investigation is being made of the source of American Whelan's story Jan. 25 on a year-old report by the Douglas company for a four-engine tailboom swept wing long range bomber.

This information came from the Associated Press on a story printed in newspapers Feb. 4. One story and another purporting to be from American Whelan were given conspicuous play in Los Angeles newspapers. According to the AP, the USAF Inspector General is looking into the matter as it looks into any apparent violation of security.

If the Inspector General finds an investigation is so we shall be glad to tell how easily a sheet of a Douglas printed brochure fell into our hands. The tale will reveal one of the story recently about the Washington newspaperman who pulled up on the street a sheet of waste paper from NACA and found the contents worthy of printing.

Why Did Truman Say It?

What did President Truman mean in his address Dec. 15 when he referred to increasing security production level within the coming year?

The aircraft industry still debates this matter. Some keep and refuse to believe like United Aircraft's President Jack Horner simply said such a jump just isn't in the cards. Another group allied themselves with the "we can do it" school, and a third, more cautious opinion was, "We can do it but only under perfect conditions," which means in this day and age that they can't do it!

We are finding, too, that even in the industry there is growing confusion as to what the President really said. This is a pity for us.

"Within one year we will be turning out planes at the same rate as we are now," he said.

AVIATION WEEK went out tonight to both the Pentagon and the White House to learn whether the President meant to say what he said.

High Air Force people answered in like this: "The production rate is classified. (2) Even if we were in position to increase, we would still not be in position to reduce the President's message, as of course, is required."

Our efforts in the White House went up with a message from one of the President's staff-people of speech writers. This spokesman, after checking for us, said in effect:

"The military enterprise speech was not careful in its reference, cleared and approved by the Air Force and by Secretary Marshall himself, as well as others. So far as the White House is concerned, the statement about a five-fold increase in production is clear and concise and meant what it said. And how does the industry know what Defense Department plans to face on the basis of the end of 1951?"

Obviously, then, the President meant what he said. The wording was not a typographical error. But it seems obvious to us, too, that the spokesman himself said not without that the "factoids" were those who control that the production rate cannot be increased in 12 months to the same the present rate, no matter how many orders might be on the industry's books.

We hope that industry meets the President's challenge, but we do hope with more the industry who have been proven right before. Somewhere along the line the President was poorly advised. This we put on the record now before the Administration starts belittling the industry with belittles next December.

—Robert M. Wood



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RADIO - CANNY ARINC EMPLOYS COLLINS EQUIPMENT ON THE GROUND



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The Caribbean net is based at Houston, New Orleans, Miami, Mexico City, Havana and San Juan. Its facilities are used by Pan American, AAL de Mexico, Eastern, Royal, Chicago and Southern, LAAV, British Overseas, KLM, Alitalia and Panagra.

In both nets ARINC employs large operations connected with the airline network, in-vision communication and operational demands. Collins equipment is used for point-to-point, point-to-point, and point-to-point communication and reception, and ground-to-air voice communication.

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THE first U.S. turbine transport is now a reality and is under test. It was made possible through the private enterprise and initiative of the Allison Division of General Motors. First flight was completed December 29, 1950 with an Allison-owned Convair Turba-Liner equipped with two Allison "501" Turbo-Prop engines.

This investment in the future of Turbo-Prop power is the result of Allison determination to speed the development of turbine transports in this country. The Allison "501" Turbo-Prop engines, developed under sponsorship of the U.S. Navy, are the most advanced Turbo-Prop engines in the U.S. today. They lead the world in high power for their low weight. They will make possible smoother, more economical transports to carry increased loads of passengers and freight.

Allison will prove these advantages in an extended flight test program on the Turba-Liner. The results—to be made available to the military services, aircraft manufacturers and commercial air lines—will prove the safe and dependable operation of Turba-Prop power.

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